

IMPROVED THERMOSTATIC MIXING VALVE

Abstract

A mixing valve receives fluid from a first source and fluid from a second source and outputs a mixture of the fluids. The mixing valve includes a valve body including a first fluid inlet, a first fluid chamber in fluid communication with the first fluid inlet, a second fluid inlet, a second fluid chamber in fluid communication with the second fluid inlet, a mixing chamber in fluid communication with the first fluid chamber and the second fluid chamber and a fluid outlet in fluid communication with the mixing chamber. The mixing valve further comprises a fluid flow regulator mounted within the housing between the first fluid chamber and the second fluid chamber, wherein a lower surface of the fluid flow regulator is disposed within the first fluid chamber and an upper surface of the fluid flow regulator is disposed within the second fluid chamber. The fluid flow regulator is mounted within the valve body in such a way as to permit movement of the fluid flow regulator along a longitudinal axis of the valve body, the fluid flow regulator having apertures therein which permit a flow of fluid between the second fluid chamber and the mixing chamber. The fluid flow regulator includes a central hub which extends below the lower surface into the mixing chamber. A temperature-sensing device is mounted to the central hub of the fluid flow regulator, the temperature-sensing device including a cup portion disposed proximate

the mixing chamber and a piston which extends through the central hub of the fluid flow regulator and into engagement with an adjustably fixed surface of an adjustment device of the mixing valve, the adjustment device being mounted to the valve body of the mixing valve. The cup portion is constructed and arranged for sensing a temperature of fluid which flows from the mixing chamber to the outlet, causing the piston to extend from the temperature-sensing device in response to an increase in temperature and causing the piston to retract into the temperature-sensing device in response to a decrease in temperature. A bias spring is mounted between the valve housing and the temperature-sensing device which biases the temperature-sensing device against the adjustably fixed surface of the adjustment device.